1. A kit comprising:

a first article having a surface;

a second article having a surface; and

a plurality of binding species capable of binding a aggregate-forming species, at least some of which binding species are fastened to or adapted to be fastened to the surface of the first article and at least some of which binding species are fastened to or adapted to be fastened to the surface of the second article.

2. A kit as in claim 1, wherein the binding species are capable of binding a neurodegenerative disease aggregate-forming species.

3. A kit as in claim 1, further comprising a candidate drug for affecting the aggregation.

4. A kit as in claim 2, further comprising a candidate drug for inhibiting the neurodegenerative disease.

5. A kit as in claim 1 or 2, wherein the binding species is a peptide.

6. A kit as in claim 1 or 2, wherein the binding species is a protein.

7. A kit as in claim 1 or 2, wherein the binding species is a sequence from a protein.

8. A kit as in claim 1 or 2, wherein the binding species is a small molecule.

9. A kit as in claim 8, wherein the small molecule is Congo red or Thioflavin-T.

10. A kit as in claim 1 or 2, wherein the binding species is an antibody to the aggregate-forming or fibril-forming species.

11. A kit as in claim 2, wherein the binding species is capable of binding neurodegenerative disease-associated fibrils or aggregates.

12. A kit as in claim 2, wherein the binding species is capable of incorporating into neurodegenerative disease-associated fibrils or aggregates.

13. A kit as in claim 11, wherein the binding species is capable of forming a macrostructure including a plurality of articles bound to a plurality of aggregates.

14. A kit as in claim 11, wherein the binding species is capable of forming a macrostructure including a plurality of articles bound to a plurality of neurodegenerative disease-associated aggregates.

15. A kit as in claim 1, wherein the binding species is a protein capable of aggregation characteristic of disease *that involves aberrant biomolecular aggregation.*

16. A kit as in claim 1, wherein the binding species is selected from among immunoglobulins, hemoglobins, p53, fibrin, integrins, cryoglobulins, human islet amyloid polypeptide (hIAPP), and other amyloid proteins.

17. A kit as in claim 2, wherein the binding species is selected from among beta-amyloid proteins, amyloid proteins, Amyloid Precursor protein (APP) Tau, synnuclein, PrP^{CJD}, PrP^{BSE}, $PrP^{Scrapie}$, Huntingtin, and fragments and fusions thereof.

18. A kit as in claim 2, wherein the species includes amino acids 1-40 or 1-42 of the beta-amyloid peptide.

19. A kit as in claim 17, wherein the protein, fragment or fusion is aggregate-binding, aggregate-formation-resistant.

20. A kit as in claim 1, 2, 3 or 4, wherein at least one of the articles is gold or gold-coated.

21. A kit as in claim 20, wherein a self-assembled monolayer is formed on the gold surface.

22. A kit as in claim 20, wherein the self-assembled monolayer consists of synthetic molecules.

23. A kit as in claim 22, wherein the self-assembled monolayer is composed solely of thiols and di-thiols and does not include direct incorporation of proteins into the monolayer.

24. A kit as in claim 22, wherein thiols, di-thiols and Cysteine or sulfur-terminated peptides are incorporated into the self-assembled monolayer.

25. A kit as in claim 22, where in the self-assembled monolayer presents a binding partner for an affinity ligand.

26. A kit as in claim 24, wherein the surface presents a moiety that can coordinate a metal.

27. A kit as in claim 24, wherein the surface carries a chelate coordinating a metal immobilized relative to the surface, and the binding species is derivatized with a polyamino acid tag.

28. A kit as in claim 22, wherein the self-assembled monolayer presents carboxy-terminated headgroups to facilitate chemical coupling to unmodified biomolecules.

29. A kit as in 28, wherein a primary amine on the biomolecule is coupled to the carboxylated surface via EDC/NHS coupling chemistry.

30. A kit as in claim 22, wherein the self-assembled monolayer includes nitrilotriacetic acid, 2,2'-bis(salicylideneamino)-6,6'-demethyldiphenyl, or 1,8-bis(a-pyridyl)-3,6-dithiaoctane.

31. An article as in claim 22, wherein the self-assembled monolayer is a mixed self-assembled monolayer including self-assembled monolayer-forming species, some but not all of the self-assembled monolayer-forming species include the moiety that can coordinate a metal

32. A kit as in claim 1, 2, or 20 – 30, wherein the first article is a fluid-suspendible, isolatable particle.

33. A kit as in claim 32, wherein the particle is an isolatable particle.

34. A kit as in claim 32, wherein the first article is a colloid particle.

35. A kit as in claim 34, wherein the first article is a gold colloid particle.

36. A kit as in claim 1 or 20, wherein the first article is an SPR chip.

37. A kit as in claim 1, 2, 32, or 35, wherein the first article is a particle, the kit further comprising additional particles fastened to or adapted to be fastened to at least some of the binding species.

38. A kit as in claim 37, further comprising a candidate drug for affecting the aggregation.

39. A kit as in claim 37, wherein the binding species fastened to or adapted to be fastened to the surface of the first article are fastenable to the surface, wherein fastening is facilitated by an affinity tag binding to its partner on the first article.

40. A kit as in claim 39, wherein the binding species fastened to or adapted to be fastened to the surface of the first article are fastenable to the surface via a metal binding tag/metal/chelate linkage.

41. A kit as in claim 40, wherein the surface carries a chelate coordinating a metal immobilized relative to the surface, and the binding species is derivatized with a polyamino acid tag.

42. A kit as in claim 41, wherein the polyamino acid tag is a histidine tag.

43. A kit as in claim 37, wherein the binding species are fastened to the surface of the first article through a chemical coupling reaction.

44. A kit as in claim 43 in which EDC and NHS are used to link primary amines on the binding species to carboxylates on the surface of the first article.

45. A kit as in claim 1, 2, 21-23, wherein the binding species fastened to or adapted to be fastened to the surface of the first article are fastenable to the surface via complementary nucleic acid sequence pairs.

46. A kit as in claim 1, or 2, wherein the binding species carry a terminal cysteine and are fastened to the surface of the first article thereby.

47. A kit as in claim 37, comprising a plurality of particles fastened to at least some of the binding species, wherein the binding species are immobilized relative to the surface of the particles at a surface concentration small enough that, in the absence of auxiliary, non-surface immobilized aggregate-forming or fibril-forming species, particle aggregation upon particle/particle exposure is hindered within a time frame allowing comparison of aggregation in the absence of auxiliary aggregate or fibril-forming species with aggregation in the presence of

auxiliary aggregate or fibril-forming species.

48. A kit as in claim 47, wherein comparison is visually determined.

49. A kit as in claim 48 wherein the comparative parameter is a visible change in the color of the solution.

50. A kit as in claim 2, wherein the binding species is not a neurodegenerative disease aggregate-forming or fibril-forming species.

51. A kit as in claim 2, wherein the binding species is a neurodegenerative disease aggregate-forming or fibril-forming species but is not capable of converting other binding species to neurodegenerative disease aggregate-forming or fibril-forming species.

52. A kit as in claim 2, wherein the binding species is converted by a neurodegenerative disease aggregate-forming or fibril-forming species to an aggregate-forming or fibril-forming species.

53. A kit as in claim 52, wherein the binding species converted to an aggregate-forming species is able to convert other binding species to aggregate-forming or fibril-forming species.

54. A kit as in claim 2 further comprising species capable of being converted by a neurodegenerative disease aggregate-forming or fibril forming species to aggregate-forming species for addition to amplify the aggregation reaction.

55. A composition as in claim 11 or 12, wherein the binding species is a peptide fastened at its N-terminus to the moiety that can coordinate a metal.

56. A kit as in claim 1, 2, 3, 4, and 37, wherein the binding species is fastened to or

adapted to be fastened to the surface of the first article via at least one of a carboxylate group via EDC/NHS chemistry, a nucleic acid sequence, or affinity tag interaction.

57. An article as in claim 32, wherein the fluid-suspendable, isolatable particle is of no more than 500 nm cross section in any dimension.

58. A kit as in claim 32, wherein the fluid-suspendable, isolatable particle is of no more than 100 nm cross section in any dimension.

59. An article as in claim 35, wherein the self-assembled monolayer is a mixed monolayer presenting a moiety to facilitate the fastening of a binding species and further comprises a signaling entity.

60. An article as in claim 59, wherein the colloid itself is the signaling entity.

61. An article as in claim 59, comprising a plurality of auxiliary signaling entities.

62. An article as in claim 59, comprising a plurality of auxiliary signaling entities covalently fastened to the colloid particle.

63. An article as in claim 59, wherein the signaling entity is covalently attached to a thiol and incorporated into the self-assembled monolayer.

64. An article as in claim 63, wherein the signaling entity is an electroactive species.

65. An article as in claim 64, wherein the signaling entity is a metallocene.

66. An article as in claim 65, wherein the signaling entity is a ferrocene or a ferrocene derivative.

67. An article as in claim 32, wherein the particle carries a plurality of immobilized electroactive species.

68. An article as in claim 59, wherein the auxiliary signaling entity comprises a dye, pigment, electroactive molecule, fluorescent moiety, up-regulating phosphor, or enzyme-fastened signaling moiety including horse radish peroxidase and alkaline phosphatase.

69. A kit as in claim 1, wherein the first article is a magnetically suspendable particle.

70. A kit as in claim 33, wherein the article is a gold-coated magnetic particle.

71. A kit as in claim 1, wherein the binding species is specifically fastened or adapted to be specifically fastened to the surface of the first article.

72. A composition comprising:
a binding species capable of binding an aggregate-forming species, fastened to an affinity tag.

73. A composition as in claim 72, wherein the binding species is capable of binding a disease-associated aggregate-forming species.

74. A composition as in claim 72, wherein the binding species is capable of binding a neurodegenerative disease-associated aggregate-forming species.

75. A composition as in claim 72, wherein the binding species is a peptide.

76. A composition as in claim 72, wherein the binding species is a protein.

77. A composition as in claim 72, wherein the binding species is a sequence from a protein.

78. A composition as in claim 72, wherein the binding species is a small molecule.

79. A composition as in claim 72, wherein the binding species is an antibody to the aggregate-forming or fibril-forming species.

80. A kit as in claim 72, wherein the binding species is capable of binding aggregates.

81. A kit as in claim 72, wherein the binding species is capable of binding disease-associated aggregates.

82. A kit as in claim 72, wherein the binding species is capable of binding neurodegenerative disease-associated aggregates.

83. A kit as in claim 80, wherein the binding species is capable of forming a macrostructure including a plurality of articles bound to a plurality of aggregates.

84. A kit as in claim 80, wherein the binding species is capable of forming a macrostructure including a plurality of articles bound to a plurality of disease-associated aggregates.

85. A kit as in claim 72, wherein the binding species is a protein capable of aggregation characteristic of neurodegenerative aggregation associated disease.

86. A kit as in claim 72, wherein the binding species is a protein capable of aggregation characteristic of aggregation-associated disease.

87. A kit as in claim 72, wherein the binding species is a protein capable of aggregation characteristic of neurodegenerative disease.

88. A kit as in claim 72, wherein the binding species is selected from among APP, beta-amyloid proteins, amyloid proteins, Tau, synnuclein, PrP^{CJD}, PrP^{BSE}, $PrP^{Scrapie}$, Huntingtin, and fragments and fusions thereof.

89. A kit as in claim 88, wherein the protein, fragment or fusion is aggregate-binding, aggregate-formation-resistant.

90. A composition as in claim 72, further comprising particles fastened to or adapted to be fastened to at least some of the binding species.

91. A composition as in claim 72, wherein the affinity tag is a metal binding tag.

92. A composition as in claim 72, wherein the moiety is a polyamino acid tag.

93. A composition as in claim 72, wherein the polyamino acid tag is a histidine tag.

94. A method comprising:

forming aggregates in a sample containing aggregate-forming species; and

exposing the aggregates to an article having a surface and a plurality of binding species capable of binding the aggregates or aggregate-forming species, the binding species immobilized relative to or adapted to be immobilized relative to a surface of the article.

95. A method as in claim 94, further comprising exposing the aggregates to the article in the presence of a candidate drug for affecting aggregation.

96. A method as in claim 93, wherein the method is performed in a fluid medium.

97. A method as in claim 96, wherein the solution does not contain detergents or surfactants.

98. A method as in claim 96, wherein capillary flow force is not required to bring binding species, articles, or aggregate forming species together.

99. A method as in 96, wherein the surface is not absorptive of the fluid medium.

100. A method as in claim 94, wherein the binding species is a peptide.

101. A method as in claim 94, wherein the binding species is a protein.

102. A method as in claim 94, wherein the binding species is a sequence from a protein.

103. A method as in claim 94, wherein the binding species is a small molecule.

104. A method as in claim 94, wherein the article is a fluid-suspendible, isolatable particle.

105. A method as in claim 94, wherein the article is a colloid particle.

106. A method as in claim 94, wherein the article is a gold colloid particle upon a surface of which is a SAM to which the binding species is immobilized.

107. A method as in claim 94, wherein the article is a particle, the method comprising exposing the aggregate to additional particles immobilized relative to or adapted to be immobilized relative to at least some of the binding species.

108. A method as in claim 94, wherein the binding species are fastened to or adapted to be fastened to the surface of the article via a metal binding tag/metal/chelate linkage.

109. A method as in claim 94, wherein the assay is performed in a plurality of

individually spatially-addressable regions.

110. A method as in claim 94, wherein the individually spatially-addressable regions comprise different wells of a multi-well plate.

111. A kit comprising:

an article having a surface; and

a plurality of binding species capable of binding an aggregate-forming species, at least some of which binding species are immobilized relative to or adapted to be immobilized relative to the surface, wherein the surface has a chemical functionality substantially inhibiting non-specific binding of aggregate-forming species.

112. A kit as in claim 111, wherein the chemical functionality is a tri-ethylene glycol-terminated thiol.

113. A kit as in claim 111, wherein the surface has a chemical functionality substantially inhibiting non-specific binding in the absence of a protein blocking step.

114. A kit as in claim 111, wherein the aggregate-forming species is associated with neurodegenerative disease.

115. A kit as in claim 111, wherein the article is a fluid-suspendible, isolatable particle.

116. A kit as in claim 111, wherein the article is a colloid particle.

117. A kit as in claim 111, wherein the article is a particle, further comprising additional particles immobilized relative to or adapted to be immobilized relative to at least some of the binding species.

118. A kit as in claim 115, wherein the binding species are fastened to or adapted to be

fastened to the surface via a metal binding tag/metal/chelate linkage.

119. A kit as in claim 111, wherein the surface carries a self-assembled monolayer.

120. A kit as in claim 119, wherein the self-assembled monolayer comprises a species that inhibits colloid/colloid self aggregation.

121. A kit as in claim 120, wherein the self-assembled monolayer contains charged moieties.

122. A kit as in claim 120, wherein the self-assembled monolayer contains carboxy-terminated species.

123. A kit as in claim 120, wherein the self-assembled monolayer contains polyethylene glycol thiols.

124. A kit as in claim 121, wherein the charged moieties include nitrilotriacetic acid, 2,2'-bis(salicylideneamino)-6,6'-demethyldiphenyl, or 1,8-bis(a-pyridyl)-3,6-dithiaoctane.

125. A kit as in claim 124, wherein the charged moieties comprise nitrilotriacetic acid.

126. A kit as in claim 119, wherein the self-assembled monolayer comprises oligonucleotides.

127. A kit as in claim 119, wherein the self-assembled monolayer comprises DNA moieties.

128. A kit as in claim 119, wherein the self-assembled monolayer includes charged peptides.

129. A kit as in claim 119, wherein the self-assembled monolayer consists of synthetic

molecules.

130. A kit as in claim 119, the self-assembled monolayer deposited onto the surface from a solution including a carboxy-terminated thiol.

131. A kit as in claim 130, wherein the solution contains a surfactant.

132. A kit as in claim 130, wherein the solution contains carboxolates, salts of carboxilic acids, or sodium citrate

133. A kit as in claim 130, the self-assembled monolayer deposited onto the surface not during formation of the colloid particle itself.

134. A kit as in claim 130, the self-assembled monolayer deposited onto the surface in suspension in a fluid, the particle not present at a fluid-fluid interface.

135. A kit as in claim 119, wherein the self-assembled monolayer is a mixed self-assembled monolayer further comprising a thiol terminated with a moiety to facilitate the fastening of the binding species or a binding partner of the binding species.

136. A method as in claim 94, comprising exposing the aggregates or fibrils to a plurality of colloids fastenable to the binding species, thereby linking the colloids to the fibrils or aggregates.

137. A method as in claim 136, wherein the exposing step takes place in a detergent free solution.

138. A method as in claim 136, wherein the exposing step takes place in the absence of an absorptive surface.

139. A method as in claim 136, comprising rendering the fibrils or aggregates visibly detectable via addition of the colloids.

140. A method as in claim 139, wherein the visibly detectable parameter is a change in the color of the solution.

141. A method as in claim 139, wherein the visibly detectable parameter is the formation of a visible colloid-peptide reticulum.

142. A method as in claim 136, wherein the colloid-peptide aggregates are detected by light scattering.

143. A method comprising:
forming a self-assembled monolayer on a surface by exposing the surface to a medium containing self-assembled monolayer-forming molecular species and surfactant.

144. A method comprising:
forming a self-assembled monolayer on a surface by exposing the surface to a medium containing self-assembled monolayer-forming molecular species and a carboxylate.

145. A method comprising:
forming a self-assembled monolayer on a surface of a colloid particle not during formation of the colloid particle itself.

146. A method comprising:
forming a self-assembled monolayer on a surface of a colloid particle in suspension in a fluid, the particle not present at a fluid-fluid interface.

147. A method as in claims 143, wherein the medium is a solution or suspension containing the self-assembled monolayer-forming molecular species and the surfactant.

148. A method as in claim 143 further comprising, after forming the self-assembled monolayer on the surface, removing any residual surfactant from the self-assembled monolayer.

149. A method as in claim 143, further comprising heat-cycling the colloid particle.

150. A method comprising:

providing at least two binding species, each capable of binding an aggregate-forming species, immobilized relative to each other or adapted to be immobilized relative to each other, thereby defining an aggregate linker; and

exposing the linker to a sample suspected of containing aggregate-forming species or a solution containing a candidate drug for affecting aggregation.

151. A method as in claim 150, wherein the binding species are capable of binding a disease associated aggregate-forming species.

152. A method as in claim 150, wherein the binding species are capable of binding a neurodegenerative disease aggregate-forming species.

153. A method as in claim 150, wherein the binding species are capable of binding a non-neurodegenerative disease aggregate-forming species.

154. A method comprising:

exposing a live cell that can produce an aggregate-forming species to a candidate drug for affecting aggregation; and

monitoring the potential of material produced by the cell for formation of aggregates.

155. A method as in claim 154, comprising monitoring the aggregation potential of the material produced by the cell by exposing the aggregates to an article having a surface and a plurality of binding species capable of binding the aggregates or aggregate-forming species, the

binding species immobilized relative to or adapted to be immobilized relative to a surface of the article.

156. A method as in claim 155, wherein monitoring the aggregation potential is achieved by monitoring a change in the solution color.

157. A method as in claim 155, wherein monitoring the aggregation potential is achieved by monitoring the extent of formation of the colloid-peptide reticulum.

158. A method as in claim 154, wherein the cell is not exposed to a candidate drug.

159. A method as in claim 154, wherein the monitoring step does not involve removing a sample of the cell or fluid surrounding the cell.

160. A method as in claim 154, wherein the monitoring step takes place in the presence of the cell.

161. A method as in claim 154, wherein prior to the monitoring step the cell is lysed.

162. A method as in claim 154, wherein the cell can produce disease-associated aggregate-forming species, further comprising monitoring the potential of material produced by the cell for formation of aggregates characteristic of the disease.

163. A method as in claim 155, wherein the disease is neurodegenerative disease.

164. A method as in claim 155, wherein the disease is non-neurodegenerative disease.

165. A method comprising:

forming a solution containing a species capable of binding aggregate-forming species and one of a sample suspected of containing aggregate-forming species or a candidate

drug for affecting aggregation; and

without transferring any components into the solution or removing the solution from its container, detecting aggregation in the solution.

166. A method as in claim 165, wherein the species is capable of binding a disease-associated aggregate-forming species, the method comprising detecting aggregation characteristic of the disease.

167. A method as in claim 166, wherein the disease is neurodegenerative disease.

168. A method as in claim 166, wherein the disease is non-neurodegenerative disease.

169. A method as in claim 165, further comprising introducing energy into the fluid.

170. A system comprising at least two particles each immobilized relative to an aggregate-forming species.

171. A system as in claim 170, each of the at least two particles fastened to a binding species binding the aggregate-forming species.

172. A system as in claim 170, comprising at least two particles each immobilized relative to a disease-associated aggregate-forming species.

173. A system comprising an aggregate, and at least two particles immobilized relative to the aggregate.

174. A system as in claim 173, wherein the aggregate is a disease-associated aggregate.

175. A method comprising:

providing an article having a first surface and a plurality of binding species capable of binding an aggregate-forming species immobilized relative to or adapted to be immobilized relative to the surface; and

exposing the first surface to a sample containing or suspected of containing aggregate-forming species.

176. A method as in claim 175, wherein the binding species is capable of binding a disease-associated aggregate-forming species.

177. A method as in claim 176, wherein the disease is neurodegenerative disease.

178. A method as in claim 176, wherein the disease is non-neurodegenerative disease.

179. A method as in claim 175, wherein the surface is a surface of a particle, the method comprising:

providing a plurality of particles carrying the binding species immobilized relative thereto; and

exposing the particles to the sample.

180. A method as in claim 179, further comprising determining the extent of aggregation of the particles indicative of aggregate-forming species present in the sample.

181. A method as in claim 175, wherein the surface is a surface of a particle, the method comprising:

providing a plurality of particles and binding species fastened to or adapted to be fastened to surfaces of the particles; and

exposing the particles and binding species to the sample.

182. A method as in claim 179, wherein the binding species and the sample are derived from diverse biological species.

183. A method as in claim 181, wherein the binding species and sample are the same protein or protein fragments from diverse biological species.

184. A method as in claim 179, further comprising determining the extent of aggregation of the particles.

185. A method as in claim 184, wherein the sample contains aggregate-forming or species, the exposing step involving exposing the particles and binding species to the sample in the presence of a candidate drug suspected of affecting aggregate formation.

186. A method as in claim 185, wherein the sample is produced by a cell.

187. A method as in claim 186, further comprising determining the extent of aggregation of the particles.

188. A method as in claim 187, comprising first exposing the cell that produces the sample to a candidate drug suspected of affecting aggregate formation, then exposing the particles and binding species to the sample.

189. A method as in claim 188, further comprising lysing the cell to produce the sample.

190. A method as in claim 188, wherein the candidate drug is suspected of inhibiting disease.

191. A method as in claim 190, wherein the candidate drug is suspected of inhibiting neurodegenerative disease.

192. A method as in claim 188, wherein the drug is suspected of inhibiting an enzyme

whose activity has been linked to neurodegenerative disease.

193. A method as in claim 188, wherein the drug is suspected of inhibiting a cellular process that is linked to neurodegenerative disease.

194. A method as in claim 192, wherein the candidate drug is suspected of inhibiting ß-secretase.

195. A method as in claim 192, wherein the candidate drug is suspected of inhibiting γ-secretase.

196. A method as in claim 185, the exposing step involving exposing the particles to the sample in the presence of beta-amyloid including amino acid sequences of from 1-38 to 1-44.

197. A method as in claim 196, wherein the beta-amyloid peptide includes an amino acid sequence of 1-40.

198. A method as in claim 180, the exposing step comprising exposing the particles to a biological specimen drawn from a sample suspected of being associated with neurodegenerative disease.

199. A method as in claim 198, comprising:
exposing the specimen to the particles and the binding species.

200. A method as in claim 198, wherein the sample comprises a blood sample.

201. A method as in claim 198, wherein the sample is drawn from a human patient.

202. A method as in claim 198, wherein the sample is drawn from an animal.

203. A method as in claim 198, wherein the sample is drawn from livestock.

204. A method as in claim 198, wherein the sample is drawn from livestock feed.

205. A method as in claim 198, wherein the sample is an organ donation sample.

206. A method as in claim 198, wherein the sample is food suitable for human consumption.

207. A method as in claim 198, wherein the sample is a fluid suitable for human or animal consumption.

208. A method as in claim 198, wherein the sample is milk.

209. A method as in claim 198, wherein the sample is water.

210. A method as in claim 180, further comprising observing a change in the sample visible to the eye upon exposure of the particles to the sample.

211. A method as in claim 210, wherein the visible change comprises the aggregation of particles.

212. A method as in claim 211, wherein the visible change comprises the aggregation of gold colloid particles.

213. A method as in claim 210, wherein the visible change comprises a color change.

214. A method as in claim 180, further comprising measuring a change in effective particle/agglomerate size upon exposure of the particles to the sample using a light-scattering device.

215. A method as in claim 180, comprising digitizing an image of the sample, then using pattern recognition to determine whether the sample contains aggregates.

216. A method as in claim 198, the binding species immobilized relative to the surface of the particles at a surface concentration small enough that, in the absence of auxiliary, non-surface immobilized aggregate-forming or fibril-forming species, particle aggregation upon particle/particle exposure is hindered within a time frame allowing comparison of aggregation in the absence of auxiliary aggregate-forming or fibril-forming species with aggregation in the presence of auxiliary aggregate-forming or fibril-forming species.

217. A method as in claim 175, further comprising determining interaction of the binding species with any aggregate-forming or fibril-forming species present in the sample.

218. A method as in claim 175, wherein the binding species and the sample are diverse biological species.

219. A method as in claim 175, comprising exposing the surface to the sample in the presence of a binding species immobilized relative to a particle that binds to the aggregate-forming species.

220. A method as in claim 219, wherein the particle carries an auxiliary signaling entity.

221. A method as in claim 220, wherein the auxiliary signaling entity comprises a dye, pigment, electroactive molecule, fluorescent moiety, up-regulating phosphor, or enzyme-fastened signaling moiety including horse radish peroxidase and alkaline phosphatase.

222. A method as in claim 219, wherein the surface is a surface of an electrode, and the particle carries an electroactive species immobilized relative to the surface.

223. A method as in claim 222, wherein the particle carries a plurality of immobilized electroactive species.

224. A method as in claim 223, wherein the plurality of electroactive species comprise metallocenes.

225. A method as in claim 223, wherein the plurality of electroactive species comprise ferrocenes or ferrocene derivatives.

226. A method as in claim 175, wherein the article is a magnetic bead.

227. A method as in claim 175, wherein the article is an SPR chip.

228. A method as in claim 175, wherein the article is an electrode.

229. A method as in claim 175, wherein the article is an ELISA plate.

230. A method as in claim 175, wherein the surface comprises a plurality of individually spatially-addressable regions.

231. A method as in claim 210, wherein the individually spatially-addressable regions comprise different wells of a multi-well plate.

232. A method as in claim 231, comprising exposing the sample to the surface in the presence of a candidate drug for affecting aggregate formation.

233. A method as in claim 232, further comprising observing a reduction in interaction of the aggregate-forming species with the surface-immobilized binding species due to presence of the candidate drug.

234. A method as in claim 175, wherein the sample is a drug-screening preparation that contains an aggregate-forming species.

235. A method as in claim 175, wherein the surface is a surface of a particle, the method comprising:

forming a composition comprising, suspended in a fluid medium, the binding species, particles fastenable to the binding species, and magnetic beads fastenable to the binding species; and

exposing the composition to the sample.

236. A method as in claim 235, wherein the particles and/or the magnetic beads carry immobilized chelates, and at least some of the binding species carry a metal binding tag fastenable to a metal coordinated by the chelate.

237. A method as in claim 235, wherein at least some of the particles and beads are fastened to binding species.

238. A method as in claim 235, the composition further comprising a redox-active species fastened to or fastenable to the particles.

239. A method as in claim 235, further comprising exposing the composition to a sample containing an aggregate-forming species and a candidate drug for affecting aggregate formation.

240. A method as in claim 238, further comprising drawing at least some of the magnetic beads, fastened to aggregate-forming or fibril-forming species which are fastened to particles carrying redox-active agents, to an electrode and determining the presence of the redox-active agents proximate the electrodes.

241. A method as in claim 240, comprising carrying out the method in the absence of a

magnetic bead, and allowing colloid-peptide reticulum to sediment onto the electrode.

242. A method as in claim 240, comprising carrying out the method in the absence of a magnetic bead, and the electrode displays a binding species capable of binding the aggregate-forming species to recruit the signaling colloid-peptide reticulum to the electrode.

243. A method as in claim 240, wherein the electrode is coated with an inhibitor of non-specific binding.

244. A method as in claim 243, wherein the inhibitor of non-specific binding comprises a self-assembled monolayer.

245. A method as in claim 244, wherein the self-assembled monolayer comprises a polyethylene glycol-terminated self-assembled monolayer-forming species.

246. A method as in claim 244, wherein the self-assembled monolayer further comprises a species that enhances permeability of the self-assembled monolayer to electrons.

247. A method as in claim 246, wherein the species enhancing permeability to electrons comprises a conductive self-assembled monolayer-forming species.

248. A method as in claim 246, wherein the species that enhances permeability to electrons comprises a species that causes defect sites in the self-assembled monolayer.

249. A composition comprising:
a binding species capable of binding an aggregate-forming species; and
an electronic signaling entity immobilized relative to the binding species.

250. A composition as in claim 249, wherein the binding species is capable of binding a neurodegenerative disease aggregate-forming species.

251. A method comprising:

providing a binding species immobilized relative to or adapted to be immobilized relative to a surface of a first article, which binding species is not a neurodegenerative disease aggregate-forming species, but is capable of binding a neurodegenerative disease aggregate-forming species; and

converting the binding species into a neurodegenerative disease aggregate-forming species.

252. A method as in claim 251, further comprising allowing the binding species to convert other binding species into neurodegenerative disease aggregate-forming species.

253. A method as in claim 252, comprising allowing the binding species to interact with a neurodegenerative disease aggregate-forming species thereby being converted in structure to a neurodegenerative disease aggregate-forming species, then allowing the species to convert the other binding species.

254. A method as in claim 251, comprising exposing the system to non-surface bound auxiliary binding species that are not neurodegenerative disease aggregate-forming species, and allowing the auxiliary binding species to be converted to neurodegenerative disease aggregate-forming species.

255. A method as in claim 251, wherein the binding species initially is fastened to the surface of the article.

256. A method as in claim 251, wherein the binding species initially is not fastened to the surface of an article.

257. A method comprising:

providing a binding species, capable of binding a neurodegenerative disease aggregate-

forming species, fastened to or adapted to be fastened to a surface of an article;

optionally allowing the binding species to fasten to the surface of the article;

allowing the binding species to bind a neurodegenerative disease aggregate-forming species without conversion of the binding species to an aggregate-forming species; and

allowing a second binding species, fastened to or adapted to be fastened to a surface of a second article, to bind the aggregate-forming species.

258. A method as in claim 257, wherein the binding species and the neurodegenerative disease aggregate-forming species are from different species of biological classification.

259. A method comprising:

providing a binding species that is not a neurodegenerative disease aggregate-forming species but is capable of binding a neurodegenerative disease aggregate-forming species;

allowing the binding species to interact with a neurodegenerative disease aggregate-forming species thereby being converted to a neurodegenerative disease aggregate-forming species, and to participate in aggregation characteristic of the presence of neurodegenerative disease aggregate-forming species; and

detecting the aggregation characteristic of the presence of the neurodegenerative disease aggregate-forming species.

260. An article comprising:

a surface of the article;

a binding species capable of binding an aggregate-forming species fastened to the surface; and

a signaling entity fastened to the surface.

261. An article as in claim 260, wherein the binding species is capable of binding a neurodegenerative disease aggregate-forming species.

262. A kit comprising:

an article having a surface; and

a plurality of binding species capable of binding an aggregate-forming species, fastened to or adapted to be fastened to the surface via a self-assembled monolayer.

263. A system as in claim 173, wherein each of the at least two particles is immobilized relative to the aggregate via a binding species fastened to the particle and binding the aggregate.

264. A system as in claim 263, comprising an aggregate immobilized relative to at least two particles, at least one of the particles immobilized relative to a second aggregate.

265. A system as in claim 264, wherein the particles and aggregates form a structure visible to the unaided human eye.

266. An article as in claim 260, wherein the signaling entity is a multiple signaling entity.

267. A method as in claim 1, comprising rendering a fibril or aggregate visible.

268. A method as in claim 175, wherein the sample is a naturally-occurring sample.

269. A method as in claim 175, wherein the sample is a structurally predetermined sample.

270. A method comprising:

administering, to a human or animal subject at risk for or indicated for treatment for an aggregate-associated condition, a candidate drug for treatment of the condition; and

exposing a sample drawn from the subject to an assay indicative of effectiveness of the candidate drug in treating the condition.

271. A method as in claim 270, wherein the human or animal is at risk for or indicated for treatment for an aggregate-associated disease, the method involving exposing the sample to an assay indicative of effectiveness of the candidate drug in inhibiting aggregation.

272. A method as in claim 270, wherein the human or animal is at risk for or indicated for treatment for an aggregate-associated disease, the method involving exposing the sample to an assay indicative of effectiveness of the candidate drug in enhancing aggregation.

273. A method as in claim 270, wherein the human or animal subject is at risk for or indicated for treatment for neurodegenerative disease, the method involving exposing the sample to an assay indicative of effectiveness of the candidate drug in inhibiting or treating neurodegenerative disease.

274. A method as in claim 270, comprising the sample to an assay indicative of aggregation potential of the sample.

275. A composition comprising:

β-amyloid peptide of from 1-38 to 1-42 comprising a polyamino acid tag.

276. A method comprising:

allowing a first colloid particle to become immobilized with respect to a second colloid particle by binding interaction between a first chemical or biological species fastened or adapted to be fastened to the first colloid particle and a second chemical or biological species fastened to or adapted to be fastened to the second colloid particle; and

determining the immobilization of the first colloid particle with respect to the second colloid particle.

277. A method as in claim 126, comprising carrying out the method in the presence of a candidate drug for affecting the binding interaction.

278. A method comprising:

allowing a first colloid particle to become immobilized with respect to a second colloid particle by binding interaction, which binding interaction does not involve a first nucleic acid sequence binding to a complementary nucleic acid sequence, between a first chemical or biological species immobilized or adapted to be immobilized relative to the first colloid particle and a second chemical or biological species immobilized or adapted to be immobilized relative to the second colloid particle; and

determining the immobilization of the first colloid particle with respect to the second colloid particle.

279. A method comprising:

allowing a first colloid particle to become immobilized with respect to a second colloid particle by binding interaction, between a first chemical or biological species immobilized with respect to the first colloid particle and a second chemical or biological species immobilized with respect to the second colloid particle, the first colloid particle linked to the second via particle via at least one self-assembled monolayer; and

determining the immobilization of the first colloid particle with respect to the second colloid particle.

280. A method as in claim 279, wherein the first and second chemical or biological species are immobilized with respect to the first and second colloid particles, respectively, via self-assembled monolayers.

281. A method as in claim 280, wherein the determining step comprises monitoring a change in the solution color.

282. A method as in claim 279, comprising carrying out the method in the presence of a drug candidate for affecting the binding interaction.

283. A method comprising:

providing a first colloid particle carrying an immobilized emissive or absorptive species;

bringing a second colloid particle carrying a second species having the ability to affect emission or absorption of the immobilized emissive or absorptive species into proximity of the first colloid particle and allowing the second species to affect the emission or absorption of the immobilized emissive or absorptive species, wherein at least one colloid is derivatized with a self-assembled monolayer.

284. A method as in claim 283, wherein the emissive species is a fluorescent species, the method involving allowing the second species to effect the fluorescence of the immobilized species.

285. A method as in claim 283, comprising bringing the second colloid particle into proximity of the first colloid particle by allowing a binding event to occur between a species immobilized with respect to the first colloid particle and a species immobilized with respect to the second colloid particle.

286. A method as in claim 283, comprising bringing the second colloid particle into proximity of the first colloid particle by allowing a first species, fastened to the first colloid particle, to become immobilized with respect to a second species, immobilized with respect to the second colloid particle.

287. A method as in claim 286, wherein the first and second species are allowed to bind to each other.

288. A method as in claim 287, wherein the first and second species are allowed to specifically bind to each other.

289. A method as in claim 287, comprising allowing the first and second species to bind to a common entity.

290. A method as in claim 289, wherein the common entity is a common colloid particle.

291. A method as in claim 289, wherein the common entity is a surface of a biological material.

292. A method as in claim 291, wherein the biological material is a tumor.

293. A method as in claim 291, wherein the biological material is a cell.

294. A method as in claim 291, wherein the biological material is a protein complex.

295. A method as in claim 283, comprising bringing the second colloid particle into proximity of the first colloid particle by allowing a first species, fastened to the first colloid particle, and a second species, fastened to a second colloid particle, each to specifically bind to a common biological target.

296. A method as in claim 283, comprising allowing the second species to quench emission of the first species.

297. A method as in claim 283, comprising allowing the second species to enhance emission of the first species.

298. A method as in claim 283, comprising allowing the second species to shift the wavelength of emission or absorption of the emissive species.

299. A method as in claim 276 or 279, wherein the binding interaction is affected by an enzyme.

300. A method as in claim 299, wherein the enzyme is caspase.

301. A method as in claim 300, comprising carrying out the method in the presence of a drug candidate for affecting enzyme activity.

302. A method as in claim 299, wherein the enzyme is calpain.

303. A method as in claim 302, comprising carrying out the method in the presence of a drug candidate for affecting enzyme activity.

304. A method as in claim 299, comprising allowing an enzyme to facilitate the binding interaction between the first and second species, then allowing at least one of the colloid particles to become fastened to at least one of the first or second species.

305. A method comprising:

providing a first colloid particle, a second colloid particle, a first chemical or biological species immobilized relative to or adapted to immobilized relative to the first colloid particle, and a second chemical or biological species immobilized relative to adapted to immobilized relative to the second colloid particle;

exposing the first and second chemical or biological species to an enzyme having the ability to or suspected of having the ability to facilitate linkage of the first chemical or biological species to the second chemical or biological species; and

determining immobilization or lack of immobilization of the first colloid particle with respect to the second colloid particle, indicative of activity of the enzyme in linkage of the first chemical or biological species to the second chemical or biological species.

306. A method as in claim 304, wherein the enzyme is caspase.

307. A method as in claim 304, wherein the enzyme is calpain.

308. A method as in claim 276 or 279, the determining step involving determining a

color change indicative of immobilization of the first colloid particle relative to the second colloid particle.

309. A method as in claim 276 or 279, comprising determining immobilization of the first colloid particle with respect to the second colloid particle by determination of a visible reticulum.

310. A method comprising:

exposing a sample suspected of containing an analyte to a first colloid particle immobilized relative to or adapted to be immobilized relative to a first chemical or biological species and a second colloid particle immobilized relative to or adapted to be immobilized relative to a second chemical or biological species, the first and second chemical or biological species each having the ability to fasten to the analyte; and

determining immobilization of the first colloid particle with respect to the second colloid particle indicative of the presence of the analyte in the sample.

311. A method comprising:

exposing first and second colloid particles to a plurality of chemical or biological species having the ability to immobilize the colloid particles with respect to each other, and to a candidate drug for disruption of at least one binding interaction thereby preventing immobilization of the first and second colloid particles with respect to each other; and

determining immobilization of the first and second colloid particles relative to each other indicative of effectiveness of the candidate drug in disrupting binding interaction.

312. A method as in claim 311, wherein the chemical or biological species have the ability to immobilize the colloid particles with respect to each other via at least one self-assembled monolayer.

313. A method as in claim 311, comprising exposing the first and second colloid particles to first and second species fastened to or adapted to be fastened to the first and second

colloid particles, respectively, the first and chemical or biological species having the ability to specifically bind to each other, wherein the candidate drug is a candidate for disruption of specific binding between the first and second chemical or biological species.

314. A method as in claim 311, comprising exposing the first and second colloid particles to first and second chemical or biological species immobilized relative to or adapted to be immobilized relative to the first and second colloid particles, respectively, and a third species having the ability to bind to the first and second chemical or biological species, and the candidate drug is for disruption of binding between one of the first and second chemical or biological species and the third species.

315. A method as in claim 314, wherein the first and second chemical or biological species comprise RGD-containing motifs, and the third species comprises endostatin.

316. A method comprising:

providing a first colloid particle, a first chemical or biological species immobilized relative to or adapted to be immobilized relative to the first colloid particle, a second colloid particle, a second chemical or biological species immobilized relative to or adapted to be immobilized relative to the second colloid particle, a third particle, a third chemical or biological species immobilized relative to or adapted to be immobilized relative to the third colloid particle, wherein the first and second chemical or biological species each have the ability for linkage to the third chemical or biological species; and

determining immobilization of the first colloid particle with respect to the second colloid particle via binding between each of the first and second chemical or biological species and the third chemical or biological species.

317. A method as in claim 314 or 316, comprising exposing the first, second, and third colloid particles to each other in the presence of a candidate drug for disruption of binding interaction between the first or second chemical or biological species and the third chemical or biological species.

318. A method as in claim 316, wherein each of the first and second chemical or biological species is derived from vitronectin, and the third chemical or biological species is endostatin.

319. A method as in claim 317, wherein each of the first and second chemical or biological species is vitronectin, the third chemical or biological species is endostatin, and the candidate drug is a candidate for disruption of vitronectin/endostatin binding.

320. A method comprising:

exposing a first sample containing or suspected of containing an aggregate-forming species; or containing or suspected of containing a precursor of an aggregate-forming species; or able to produce or is suspected of being able to produce aggregate-forming species; or is able to produce or suspected of being able to produced a precursor of an aggregate-forming species, to a second sample suspected of having the ability to affect the first sample's propensity for involvement in an aggregation process; and

determining the second sample's ability to affect the first sample's propensity for involvement in the aggregation process.

321. A method as in claim 320, comprising exposing the first sample to the second sample in the presence of a candidate drug for moderation of the ability of the second sample to affect the first sample's propensity for involvement in the aggregation process.

322. A method as in claim 320, the determining step involving determining the potential of the first sample for aggregation.

323. A method as in claim 320, wherein the first sample contains or is suspected of containing a disease associated aggregate-forming species.

324. A method as in claim 323, wherein the disease is neurodegenerative disease.

325. A method as in claim 320, wherein the first sample comprises a protein or peptide that is an aggregate-forming species.

326. A method as in claim 320, wherein the first sample comprises a precursor of a protein or peptide that is an aggregate-forming species.

327. A method as in claim 320, wherein the first sample comprises a species derived from a cell that produces a protein or peptide that is an aggregate-forming species.

328. A method as in claim 327, wherein the first sample comprises material secreted from the cell.

329. A method as in claim 327, wherein the first sample comprises a lysate of the cell or a fraction thereof.

330. A method as in claim 320, wherein the second sample is not an aggregate-forming species, and is not a precursor of an aggregate forming species.

331. A method as in claim 320, wherein the second sample is a protein, peptide, nucleic acid, or enzyme, and is naturally-occurring, synthetic, or cloned.

332. A method as in claim 331, wherein the second sample is derived from a cell.

333. A method as in claim 320, wherein the second sample comprises material derived from a cell.

334. A method as in claim 320, the determining step comprising determining aggregation of colloid particles via binding of binding species, immobilized relative to the colloid particles, to aggregates or aggregate-forming species.

335. A method comprising:

providing a plurality of particles each having a surface and a plurality of binding species capable of binding a aggregate-forming species immobilized to or adapted to be immobilized to the surface;

exposing the particles and the binding species to a candidate drug suspected of affecting aggregate formation;

determining a first observable feature of the particles indicative of effectiveness of the candidate drug in affecting aggregate formation at a first point in time; and

determining a second observable feature of the particles indicative of effectiveness of the candidate drug in affecting aggregate formation at a second point in time.

336. A method as in claim 335, wherein the candidate drug is suspected of inhibiting aggregate formation, and the determining steps comprise determining first and second observable features of the particles indicative of effectiveness of the candidate drug in inhibiting aggregate formation at the first and second points in time.

337. A method as in claim 335, wherein the binding species are capable of binding a neurodegenerative disease aggregate-forming species and the candidate drug is suspected of inhibiting neurodegenerative disease aggregate formation, and the determining steps comprise determining first and second observable features of the particles indicative of effectiveness of the candidate drug in inhibiting neurodegenerative disease aggregate formation at the first and second points in time.

338. A method as in claim 335, further comprising exposing the particles, the binding species, and the candidate drug to auxiliary aggregate-forming species.

339. A method as in claim 335, wherein at least one of the first and second observable features includes directly visually-identifiable change.

340. A method as in claim 339, wherein at least one of the first and second observable features is a color change.

341. A method as in claim 335, wherein at least one of the first and second observable features is identifiable by the unaided human eye.

342. A method as in claim 335, wherein the first and second points in time differ by at least one day.

343. A method as in claim 335, wherein the first and second points in time differ by at least 1.5 days.

344. A method as in claim 335, wherein the first and second points in time differ by at least two days.

345. A method as in claim 335, wherein the first and second points in time differ by no more than 20 minutes.

346. A method as in claim 335, wherein the first and second points in time differ by no more than 10 minutes.

347. A method as in claim 335, wherein the first and second points in time differ by no more than 5 minutes.

348. A method as in claim 335, wherein the first and second points in time differ by no more than one minute.

349. A method as in claim 335, wherein the first and second points in time differ by no more than 30 seconds.

350. A method as in claim 335, comprising:

determining the first observable feature and determining the second observable feature without disruption/agitation of the assay or exposure of external energy to the assay during and between the first and second determining steps.

351. A method comprising:

exposing a candidate drug, suspected of affecting aggregate formation, to a plurality of particles each having a surface and a plurality of binding species capable of binding aggregate-forming species immobilized to or adapted to be immobilized to the surface, under a first set of conditions and determining an observable feature of the particles indicative of effectiveness of the candidate drug in affecting aggregate formation under the first set of conditions;

exposing the candidate drug to a plurality of particles each having a surface and a plurality of binding species capable of binding a aggregate-forming species immobilized to or adapted to be immobilized to the surface under a second set of conditions; and

determining an observable feature of the particles indicative of effectiveness of the candidate drug in affecting aggregate formation under the second set of conditions.

352. A method as in claim 351, wherein the candidate drug is suspected of inhibiting aggregate formation, and the determining step comprises determining an observable feature of the particles indicative of effectiveness of the candidate drug in inhibiting aggregate formation.

353. A method as in claim 351, wherein the candidate drug is suspected of inhibiting neurodegenerative disease aggregate formation, and the determining step comprises determining an observable feature of the particles indicative of effectiveness of the candidate drug in inhibiting neurodegenerative disease aggregate formation.

354. The method of claim 351, wherein the first set of conditions is a first point in time and the second set of conditions is a second point in time.

355. The method of claim 351, wherein the first set of conditions is a first stage of

aggregation and the second set of conditions is a second stage of aggregation.

356. The method of claim 351, wherein the plurality of particles and binding species are in a solution.

357. The method of claim 356, wherein the step of determining the observable feature of the first and second stages of aggregation comprises determining a color of the solution.

358. The method of claim 357, wherein the step of determining the observable feature of the first and second stages of aggregation comprises observing a color change via an instrument.

359. The method of claim 353, wherein the step of determining the observable feature of the first and second stages of aggregation comprises determining relative dimensions of the aggregates.

360. The method of claim 359, wherein relative dimensions of the aggregates are determined by microscopy.

361. The method of claim 353, wherein the step of determining the observable feature of the first and second stages of aggregation comprises determining a molecular weight of the aggregates.

362. The method of claim 351, wherein the first set of conditions comprises a first concentration of peptides and the second set of conditions comprises a second concentration of peptides.

363. The method of claim 362, wherein any of the first and second set of conditions comprises a low or high concentration of peptides.

364. The method of claim 351, wherein the first set of conditions comprises a first type of binding species and the second set of conditions comprises a second type of binding species.

365. A method comprising:

determining a stage of aggregate formation; and

correlating the stage of aggregate or aggregate formation with a disease stage.

366. A method as in claim 365, wherein the disease is neurodegenerative disease.

367. A method comprising:

providing a plurality of particles each having a surface and a plurality of binding species capable of binding a aggregate-forming species immobilized to or adapted to be immobilized to the surface;

exposing the particles to a sample containing aggregate-forming species in the presence of a candidate drug suspected of affecting aggregate formation; and

determining an extent of aggregation of the particles indicative of effectiveness of the candidate drug in affecting aggregate formation at least 5 hours after the exposing step.

368. A method as in claim 367, comprising:

providing a plurality of particles each having a surface and a plurality of binding species capable of binding a neurodegenerative disease aggregate-forming species immobilized to or adapted to be immobilized to the surface;

exposing the particles to a sample containing neurodegenerative disease aggregate-forming species in the presence of a candidate drug suspected of inhibiting neurodegenerative disease aggregate formation; and

determining an extent of aggregation of the particles indicative of effectiveness of the candidate drug in inhibiting aggregate formation at least 5 hours after the exposing step.

369. A method as in claim 367, comprising:

determining the extent of aggregation no sooner than 10 hours after the exposing step.

370. A method as in claim 367, comprising:

determining the extent of aggregation no sooner than 15 hours after the exposing step.

371. A method as in claim 367, comprising:

determining the extent of aggregation no sooner than 20 hours after the exposing step.

372. A method comprising:

providing a plurality of particles each having a surface and a plurality of binding species capable of binding a aggregate-forming species immobilized to or adapted to be immobilized to the surface;

exposing the particles to a sample containing aggregate-forming species in the presence of a candidate drug suspected of affecting neurodegenerative disease aggregate formation; and

determining an extent of aggregation of the particles indicative of effectiveness of the candidate drug in affecting aggregate formation no later than 1 minute after the exposing step.

373. A method as in claim 372, comprising:

providing a plurality of particles each having a surface and a plurality of binding species capable of binding a neurodegenerative disease aggregate-forming species immobilized to or adapted to be immobilized to the surface;

exposing the particles to a sample containing neurodegenerative disease aggregate-forming species in the presence of a candidate drug suspected of inhibiting neurodegenerative disease aggregate formation;

determining an extent of aggregation of the particles indicative of effectiveness of the candidate drug in inhibiting aggregate formation no later than 1 minute after the exposing step.

374. A method as in claim 372, comprising:

determining the extent of aggregation no later than 30 second after the exposing step.

375. A method as in claim 372, comprising:

determining the extent of aggregation no later than 10 second after the exposing step.

376. A method comprising:

administering to a first patient exhibiting symptoms indicative of a first stage of a disease process a first drug for treatment of the disease, wherein the first drug, upon exposure to an assay indicative of potential for affecting aggregate formation, exhibits a first characteristic of affecting aggregate formation; and

administering to a second patient exhibiting symptoms indicative of a second stage of the disease process a second drug for treatment of the disease, wherein the second drug, upon exposure to the assay, exhibits a second characteristic of affecting aggregate formation.

377. A method as in claim 376, comprising:

administering to a first patient exhibiting symptoms indicative of a first stage of a neurodegenerative disease process a first drug for treatment of the disease, wherein the first drug, upon exposure to an assay indicative of inhibition of aggregate formation, exhibits a first characteristic of inhibition of aggregate formation; and

administering to a second patient exhibiting symptoms indicative of a second stage of a neurodegenerative disease process a second drug for treatment of the disease, wherein the second drug, upon exposure to the assay, exhibits a second characteristic of inhibition of aggregate formation.

378. A method as in claim 376, wherein the assay contains a plurality of particles each having a surface, a plurality of binding species capable of binding a neurodegenerative disease aggregate-forming species immobilized to or adapted to be immobilized to the surface, and a sample containing neurodegenerative disease aggregate-forming species.